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ABSTRACT

This research abstract is based on two studies: first, "Student and Instructional Outcomes under Varying Student-Teacher Ratios in Special Education" and, second, "A Case Study Analysis of Factors Related to Effective Student-Teacher Ratios", both by Martha L. Thurlow and others. The studies investigated the effects of various student-teacher ratios on quantitative and qualitative outcome measures and explored the interaction of this variable with other factors that contribute to student performance. Subjects were 139 elementary special education students. Results indicated that under lower student-teacher ratios, students spent more time in active academic responses and academic engaged time; teachers more often checked for student understanding and provided greater task relevance, more feedback, and more adaptive instruction. Under higher ratios, there was more time spent in student-teacher discussion, the entire group setting, teacher initiated tasks, management responses, and inappropriate responses. Differences were not found in measures of task completion and success. Case studies in the second report showed that academic responding time varies not only as a function of student-teacher ratios but also as a result of characteristics of the student and the home and community environments. (JDD)

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ERIC CLEARINGHOUSE ON HANDICAPPED AND GIFTED CHILDREN

ERIC/OSEP SPECIAL PROJECT ON INTERAGENCY INFORMATION DISSEMINATION

RESEARCH & RESOURCES ON SPECIAL EDUCATION

ED 377 641

ABSTRACT 22
JANUARY 1989

THE EFFECTS OF STUDENT-TEACHER RATIOS ON STUDENT PERFORMANCE IN SPECIAL EDUCATION

Although research in general education has found that lower student-teacher ratios are beneficial to student performance, a large economic cost factor needs to be considered. While teachers want smaller classes so they can be more effective, administrators must balance this desire against having larger classes to save money. An important factor in decision making is the point at which the drop in student achievement in no longer worth the financial savings of larger classes. In special education, classes are smaller in order to increase effectiveness. However, few studies of the relative effectiveness of different special education student-teacher ratios have been conducted.

Student and Instructional Outcomes Under Varying Student-Teacher Ratios in Special Education and *A Case Study Analysis of Factors Related to Effective Student-Teacher Ratios* report two studies conducted in conjunction with the Instructional Alternatives Project at the University of Minnesota. The studies investigated the effects of various student-teacher ratios on quantitative and qualitative outcome measures and explored the interaction of this variable with other factors that contribute to student performance.

SUBJECTS

Subjects for the outcomes study were 139 students in grades one through six who received special education services for part of the school day. The students were classified as learning disabled, emotionally or behaviorally disturbed, or educable mentally retarded. They were from 27 schools in 8 districts.

METHOD

Data were collected by interviews and observation using three observation instruments. A modified version of the Code for Instructional Structure and Student Academic Response (CISSAR) observation system provided quantitative data on each target student's active academic responses, task management responses, and inappropriate responses. Portable computers and a momentary time sampling technique were used for coding in the classroom. Observers also recorded the number of tasks possible, attempted, and completed by the student. For qualitative data, a second trained observer interviewed the student and teacher as well as observing the target student. This observer rated the student's instruction using a scale that contains 40 items in 6 clusters: Instructional Presentation, Instructional Planning, Checking for Student Understanding, Task Relevance, Practice, and Feedback. This observer also rated the instructional environment using a scale that includes items in 12 domains of effective instruction: Instructional Presentation, Classroom Environment, Teacher Expectations, Cognitive Emphasis, Motivational Strategies, Adaptive Instruction, Progress Evaluation, Instructional Planning, Student Understanding, Relevant Practice, Academic Engaged Time, and Informed Feedback.

Observations were conducted during each student's special education time (30–60 minutes); then the observer interviewed the target student. The teacher was interviewed at a prearranged time.

For data analysis, students' scores were grouped according to student-teacher ratios: 1:1 included ratios of one student to one or two teachers; 3:1—two or three students to one teacher; 6:1—four to six students to one teacher; 9:1—seven to nine students to one teacher; and 12:1—more than nine students to one teacher. Comparisons among these groups were made using one-way ANOVAs for independent group analysis and paired t-tests for within-groups analysis.

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RESULTS

Significant differences were found in quantitative and qualitative measures, with nearly all favoring lower student-teacher ratios. Under the lower ratios (1:1 and 3:1), students spent more time in active academic responses and academic engaged time, including writing, reading aloud, talking appropriately, and answering and asking questions. The qualitative measures showed that under lower ratios, teachers more often checked for student understanding and provided greater task relevance, more feedback, and more adaptive instruction.

Under the higher ratios (6:1, 9:1, and 12:1), there was more time spent in student-teacher discussion, more time spent in the entire group setting, and more time spent in teacher tasks, management responses, and inappropriate responses.

Differences were not found in measures of task completion and success. This was attributed to very high completion and success rates in all of the student-teacher ratio groupings.

Only a few students were observed in more than one category of student-teacher ratio; these students were the subjects of the case studies described in the second report. The case studies showed that academic responding time varies not only as a function of student-teacher ratios but also as a result of characteristics of the student and the home and community environments.

IMPLICATIONS

The finding that academic responding time accounted for a greater percentage of students' time in the 1:1 and 3:1 ratios suggests that there is a higher level of student-teacher interaction in these ratios. Whether there are true academic gains correlated to increased academic responding time and academic engaged time as measured by task completion and success rates could not be found within the results of this study. The findings suggest the need for further research: If student-teacher ratios affect student responding time and academic engaged time, then what is the optimal student-teacher ratio for student academic gain? In a related project, the investigators now are examining the effects of student-teacher ratios and other variables on the academic engaged time and qualitative nature of instruction for mildly handicapped students during their time in the general education classroom.

Student and Instructional Outcomes Under Varying Student-Teacher Ratios in Special Education and *A Case Study Analysis of Factors Related to Effective Student-Teacher Ratios*. August, 1988. 35 pp. and 82 pp., respectively. Martha L. Thurlow, James E. Ysseldyke, and Joseph W. Wotruba. Instructional Alternatives Project, University of Minnesota. U.S. Department of Education Grant No. G008630121. Available for $.85 (microfiche) or $4.00 and $8.00, respectively (hard copy), plus postage, from ERIC Document Reproduction Service, 3900 Wheeler Avenue, Alexandria, VA 22304 (1-800-227-3742). ED 304 814 and ED 304 816, respectively.

The Instructional Alternatives Project has produced 14 reports and 6 monographs on various aspects of instruction for mildly handicapped students. For further information, contact the Instructional Alternatives Project, 350 Elliott Hall, University of Minnesota, 75 East River Road, Minneapolis, MN 55455.

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